Professor Calmette then gave an account of the results of his researches and those of Dr. Guérin, which proved that cattle and monkeys could be given immunity. A vaccine has been found for cattle. Experiments lasting over many months have given results said to be of importance.

Professor Calmette stated that in a certain stable they placed five known tuberculous cows. With them were housed ten heifers, four of which had not been given an effective vaccine, and the other six had been vaccinated. The trial lasted for thirty-four months, some of the cattle being revaccinated each year. At the end of the time, when the beasts were slaughtered, it was found that of the four unvaccinated heifers three showed advanced tuberculosis. Of the six vaccinated beasts the two which had only once been vaccinated showed distinct signs of the disease, but the four animals which had been vaccinated three times, although they had been in constant company with the tuberculous companions for thirty-four months, showed no trace of the disease. Further experiments on a large scale are now going on.

To find out whether this vaccine is capable of being applied to man experiments will be necessary on chimpanzees and anthropoid apes. These animals do not take kindly to temperate climates, and Professor Calmette and his collaborators have therefore decided to build an experimental laboratory in French Guinea. The Pasteur Institute has obtained the concession of Rooma Island, four miles from Konakry, for their researches, and the governor of Western Africa has put at the institute's disposal from the 1921 budget the sum of about £6,000, with which the laboratories will be constructed. The researches of the scientific missions will take some years, and the estimated expenditure is £5,000 a year.

AWARDS OF THE PARIS ACADEMY OF SCIENCES

According to the report in *Nature* the prizes awarded by the Paris Academy include the following:

Mathematics.—Grand prize of the mathematical sciences to Ernest Esclangon, for his memoir entitled "New Researches on Quasi-periodic Functions"; the Poncelet prize to Elie Cartan, for the whole of his work; the Francœur prize to René Baire, for his work on the general theory of functions.

Mechanics.—A Montyon prize to Stéphane Drzewiecki, for his book on the general theory of the helix, with reference to marine and aerial propeller-blades; the de Parville prize to Jean Villey, for his work on internal-combustion motors.

Astronomy.—The Lalande prize to Léopold Schulhof, for his revision of the catalogue of the proper motions of 2,641 stars; the Valz prize to Ernest Maubant, for his work on the calculation of the perturbations of comets; the Janssen medal to William W. Coblentz, for his work on the infra-red radiation of terrestrial sources and of stars; the Pierre Guzman prize between François Gonnessiat (5,000 francs), for his work on the photography of the minor planets; René Jarry-Desloges (5,000 francs), for his physical observations on the planets, especially Mars, and Joanny-Ph. Lagrula (4,000 francs), for his work on the rapid identification of the minor planets.

Geography.—The Delalande-Guérineau prize to Georges Bruel, for his explorations and publications relating to French Equatorial Africa; the Tchihatchef prize to Auguste Chevalier, for his explorations in Africa and Indo-China; the Binoux prize to Marcel Augiéras, for his work in the western Sahara.

Navigation.—The prize of 6,000 francs between Fernand Gossot (4,000 francs), for his treatise on the effects of explosives, Pierre de Vanssay de Blavous (1,500 francs), for the whole of his work, and René Risser (500 francs), for his work on ballistics.

Physics.—The L. La Caze prize to Georges Sagnac, for the whole of his work in physics; the Hébert prize to Léon Bouthillon, for his work on wireless telegraphy; the Hughes prize to Frédéric Laporte, for his work on electrical standards and the photometry of electric lamps; the Clément Felix foundation to Amédée Guillet, for his researches on chronometry.

Chemistry.—The Montyon prize (unhealthy trades) to Léonce Barthe, for his work on the hygiene of workshops; the Jecker prize (5,000 francs) between Henri Gault, for his work in organic chemistry, and Henri Hérissey, for his researches on the glucosides of plants; the L. La

Caze prize to Robert de Forcrand, for his work in inorganic chemistry.

Mineralogy and Geology.—The Fontannes prize to Olivier Couffon, for his work entitled "Le Callovien du Chalet (Commune de Montreuil-Bellay)"; the Joseph Labbé prize to Albert Bordeaux, for his applications of geology to the solution of mining problems. The Victor Raulin prize is postponed until 1921.

Botany.—The Desmazieres prize to André Maublanc, for his work in mycology and plant diseases; honorable mention to Pierre Sée, for his book on the diseases of paper; the De Coincy prize to Lucien Hauman-Merck, for the whole of his botanical work. The Montagne prize is not awarded.

Anatomy and Zoology.—The Cuvier prize to Alphonse Malaquin, for the whole of his work in zoology; the Savigny prize to F. Le Cerf, for his "Revision des Ægeriidés algériens"; the Jean Thore prize to A. Cros, for his biological studies of the Coleoptera of northern Africa.

THE UNIVERSITY OF LONDON'S PHYSIOLOGICAL LABORATORY

AT its meeting in December the senate of the University of London decided that the physiological laboratory must be closed at the end of July next unless assurance of adequate support is received from the London County Council or other sources. *The British Medical Journal* writes:

The laboratory was established under the direction of Professor A. D. Waller, F.R.S., in 1902, at the headquarters of the university in the Imperial Institute, South Kensington, the equipment being provided out of a fund of £4,000 provided from private sources. It has since been maintained partly out of university funds and partly by private assistance, with the help, during the last nine years, of an annual grant of £500 from the London County Council. This grant is now to be withdrawn, and the university has no funds out of which to make up the deficit. In deciding to close the laboratory, the senate appears to be influenced also by the need of finding additional room in its present quarters for general university purposes; this is indicated by a further resolution stating "that should adequate support for the transference and maintenance of the physiological laboratory be forthcoming, the laboratory be continued during the pleasure of the senate elsewhere than in its present quarters, which shall be vacated not later than the end of July, 1921." Physiologists will agree with Sir E. Sharpey Schafer that the closure of the laboratory would be a serious misfortune. "It is," he says, in a letter to the *Times*, "unique from the fact that, being unattached to any particular medical school or college, it has been untrammelled by the necessity of providing elementary teaching in physiology, and has been able to devote all its energies to research. The success it has obtained in this under the able guidance of the director, Professor A. D. Waller, is universally acknowledged. The originality of Professor Waller's methods and the brilliant results which have been obtained from their application—especially in the difficult subject of electrophysiology—are well known. It would be a real calamity if a sudden stop were put to these activities." It is suggested that the reason why the London County Council has withdrawn its contribution at this time is the expectation that it will shortly have to contribute a large sum toward the cost of building new university headquarters. "It would seem," Sir E. Sharpey Schafer concludes, "a pity to allow an active laboratory to be abolished in order to save £500 a year towards the cost of problematical buildings." "Problematical," perhaps, is not quite the right word, because, we presume, something will have to be done for the university, but no building can be undertaken for some considerable time to come. We can only express the hope that, should the London County Council remain obdurate, public-spirited benefactors, recognizing the importance of the university having at least one research laboratory, will come to the rescue. We may, at any rate, express the expectation that means will be found to carry on the laboratory until the question of the new site for the university is settled.

POPULAR LECTURES ON SCIENTIFIC SUBJECTS AT THE CALIFORNIA ACADEMY OF SCIENCES

WITH the opening to the public of the new Museum of the California Academy of Sciences in Golden Gate Park, San Francisco, in 1916, one of the activities of the educational policy put into effect by Dr. Barton Warren Evermann, the director of the museum, was courses of popular lectures on scientific subjects of general interest. These courses began in the fall of 1916 and have been continued each year since, without interruption except during the summer months. The lectures are given at three o'clock each